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ICT Update

a current awareness bulletin for ACP agriculture

http://ictupdate.cta.int

Cut-flower supply chains and the environment: From **Kenyan** farm to European florist

Making the switch from paper-based to RFID food-safety traceability on **Vanuatu**

South African vineyard workers and Tesco's labour-standards tracking system

Traceability
Tracking food from farm to fork

CTA

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ICT Update

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Editorial

From farm to fork

The European Union, the United States, Australia, Japan and other Northern regions have over the last few years introduced tough new traceability requirements covering farm products entering their ports. 'Traceability' describes the process of identifying what has happened to a product all along its supply chain, from the producer through the exporter, packager, distributor, retailer, etc., to the consumer.

These strict requirements on tracking farm products can sometimes be quite onerous for ACP farmers. They have a choice of doing nothing, and thereby being excluded from Northern markets, or they can attempt to adapt. CTA's other publications, *Spore* (http://spore.cta.int/spore113/spore113_links.asp) and *Agritrade* (http://agritrade.cta.int/food_safety/executive_brief.htm) have previously looked at the issue of traceability from a policy perspective, but no one has yet looked at the subject from the point of view of what practical actions ACP farmers can take to address these new requirements.

In this issue of *ICT Update*, now redesigned and expanded, we offer a *tour d'horizon* of the world of traceability and consider how ACP farmers are employing ICTs to tackle the challenge. Specifically, we investigate the web applications and GIS, GPS and RFID technologies with which developing-world farmers are experimenting in order to continue to sell their products in the North. With these technologies, control officers, supermarkets and ultimately consumers are now able to track the safety of food products 'from farm to fork'.

The general manager of an organic beef abattoir on Vanuatu explains how her small island is at the forefront of efforts to introduce RFID technology for traceability in the Pacific. This issue also has the story of pest-prevention scientists and farmers in Jamaica who have developed a web-based gall-midge incidence and traceability system in order to maintain US market access for the nation's nascent hot pepper industry.

Beyond food safety, traceability systems are also being used to track a range of attributes of agricultural products at various points along the supply chains from farmer to consumer. For instance, the advent of ethical consumerism has meant that retailers must increasingly be able to deliver information relating to labour conditions and environmental standards along their supply chains.

Our lead story looks at a web-based data management tool that tracks the working conditions of South African wine-grape pickers and other workers back to the vineyard. We also have a supporting article exploring how flower growers in Kenya are using a web application that combines with a simplified decision support system to trace environmental standards from flower farm to florist.

Similar systems are also being used along supply chains to ensure the separation of GMOs from non-GM products, to identify the presence of allergenic ingredients and to prevent fraudulent product adulteration.

Knowledge of such import requirements and consumer demands – both of which differ from jurisdiction to jurisdiction – in many ACP countries is thin on the ground. In the Q&A section of this issue, we have an interview with a representative of ALCUEFOOD, a joint European-Caribbean-Latin American project that is developing an innovative web platform to raise awareness of EU and consumer traceability requirements among key stakeholders in the region.

European traceability requirements can be onerous, but ACP farmers are using ICTs to tackle the challenge.

In our own way, *ICT Update* wishes to help broaden the discourse surrounding traceability both in ACP countries and in Europe. We hope you appreciate our exploration of this multifaceted, often labyrinthine subject, and, of course, that you enjoy the magazine's sharp new look. ■

Dr Lynn Frewer (Lynn.Frewer@wur.nl) is professor of food safety and consumer behaviour at the University of Wageningen, the Netherlands, and a participant in TRACE, an EU-funded project to ensure the health of European citizens by delivering improved traceability of food products. For more information, visit www.trace.eu.org.

The future of food safety

Personalized food traceability and laser-tattooed tomatoes?

The European Union responded to the steep decline in consumer confidence in food safety following the many food scares of the late 1990s with the 2002 European Food Law. Following on from this, in January 2005, the tracking of all agricultural products entering EU back to the farm of origin became mandatory. These food traceability regulations were designed to improve European consumer confidence by indicating to the consumers that food could be rapidly recalled or withdrawn if a food safety problem were to emerge.

Furthermore, consumers are demanding the labelling of foods that contain genetically modified (GM) or allergenic ingredients, which will also require advanced traceability systems.

We know from our own research that consumers simply expect that these traceability systems be implemented, even if they do not know much about the actual procedures that are involved. Consumers expect food to be safe, and when there is a problem, they expect an immediate response.

However, many national authorities are worried about how to harmonize these regulations across borders. If you have different sets of traceability regulations applied in various regions, they create problems for international trade, so some level of cross-regional harmonization is essential. ACP farmers could lose the industrial buyers of their products if they are found to be using ingredients that have not been traced according to the parameters of the EU (even though this might not be a locally regulated requirement).

So, on the one hand, these requirements mean that there is a greater incentive for ACP farmers to adopt new ICT approaches guaranteeing traceability. Those that do adopt appropriate and acceptable traceability systems would gain a competitive advantage.

On the other hand, it could be argued that traceability requirements are in effect imposing increased regulation on ACP farmers, and possibly a method of denying them market access. However, from the perspective of consumers in the developed world, traceability requirements are simply the correct governmental response to demands for higher food safety standards. The way consumers in the developed world respond to health risks is, unfortunately, unlikely to be particularly focused on the needs of developing country farmers. This is the cruel equation.

In our research, we've been looking at consumer acceptability of different ICT approaches. One thing that we've found about European consumers – and this holds across many different countries – is that they don't very much like traceability systems that are actually visible on products. Laser-tattooing of tomatoes, for example, is not acceptable to consumers. So this particular traceability technology is unlikely to be further developed.

What is likely to appear is technology that deals with a much broader range of individual consumer preferences related to traceability. We are sure that devices that can provide consumers with instant, personalized traceability information about a product will soon appear in the supermarkets.

One possible form that such personalized traceability information delivery could take is via the use of smart cards, hand-held scanners and in-store computer terminals. Let's say that a consumer is very interested in fair-trade products that also do not contain peanuts as an ingredient. He or she could insert a smart card loaded with their own traceability 'preferences' into the terminal and then scan each product. The terminal would then report back to the consumer the working conditions of employees along the product's supply chain and whether there is any chance of peanut contamination somewhere along the same chain.

Another consumer, who might not want to buy products containing genetically modified ingredients, for example, would have a different profile on his or her smart card. In this way, these different attributes of a product – food safety, environmental footprint, the presence of GM or allergenic ingredients, ethical working conditions, and so on – could be cross-referenced and delivered to the consumer directly. All stakeholders along the supply chain, including ACP farmers, would be affected by such technology, as each of their systems would have to be compatible with that used in the shop.

So the future for traceability is one of ever-increasing technological complexity, which of course will have an ever greater impact on ACP farmers. ■

STUN RADERMAKER/HH

Feature

Wine, workers and web applications

South African wine, fruit and cut-flower growers are employing a web application developed by Tesco to track labour standards to ensure they retain market access in the UK and don't scare off the growing number of ethical consumers.

Food safety traceability 'from farm to fork' is being made easier by a range of information technologies. The tracking of labour standards along the supply chain – the working conditions of those who grow, pick, manufacture and package farm products – is no different.

Supermarkets are very concerned about revelations of poor labour standards somewhere along their supply chains. A damning exposé from an NGO or campaign group can have a detrimental effect on their corporate image and, ultimately, on their market position.

In spring 2005, the international development agency ActionAid and the South African NGO Women on Farms published a highly critical report about labour conditions on deciduous fruit farms in the Western Cape province that the groups alleged were part of the Tesco supply chain.

The report condemned Tesco and other retailers for their practice of squeezing local growers on price. This in turn forces growers to pay poverty wages to their workers and to cut their permanent workforce, replacing them with cheaper seasonal and contract workers, many of them women.

In addition to sub-minimum-wage pay, the ActionAid report highlighted the use of spray pesticides while women were still working in orchards, food insecurity, and dismal housing conditions, with some casual workers living in shacks made out of cardboard.

In the wine industry, historically, all this has been exacerbated by the 'dop system', the practice of paying workers in whole or part in wine. While this is slowly disappearing, the dop system still exists in many areas.

The report made a big splash and pushed Tesco to improve their approach to labour standards tracking on South African fruit farms, and on vineyards in particular. The supermarket reacted by stepping up its requirement that all suppliers of Tesco-brand goods undergo regular external social audits, at their own expense, and to register the results using a web application developed by Tesco and other UK food retailers.

Sedex and Wieta's social auditing programme

South African NGOs and trade unions insisted that if social auditing – the examination of compliance with accepted international labour-standard norms – were to be introduced down the supply chain in South Africa, then it must be performed by the Wine and Agricultural Ethical Trade Association (Wieta), at Tesco's expense and not the suppliers'.

So Tesco approached Wieta to see if we could satisfy their auditing standards. Tesco has been a member of the UK-based Ethical Trade Initiative (ETI) from its inception in 1998. Wieta meanwhile is a South African non-profit voluntary multi-stakeholder social auditing body that promotes the ETI Baseline Code on minimum labour conditions in the wine sector and the fruit and cut-flower industries. Wieta represents key sector stakeholders, including NGOs, trade unions, growers, processors, packers, retailers and government.

In concert with other UK supermarkets in 2004, Tesco developed a web-based data management tool, the Social and Economic Development Exchange (Sedex), with which retailers can track ethical practices along their supply chains. In late 2005, the Sedex organisation – the non-profit body of the same name set up to manage and promote the software – approved Wieta as a social auditing body to be incorporated into the system.

Wine-grape growers that are members of Wieta pay the Sedex organisation a fee to register. Tesco then requires the growers perform self-assessments of their own compliance with the ETI code. Wieta measures producer and grower compliance with its own code, which is derived from the ETI code but adapted by local stakeholders to the South African context. The growers upload this assessment to the online Sedex system under their own password and username.

Wieta then visits and audits each grower. The audit begins with a joint management-employee briefing. We always select the members of our audit team so that they mirror the racial, gender and language profile of the labour force, and are able to interview workers in their own language –

FRIEDRICH STARK/LINEAIR

Afrikaans, isiXhosa or Sesotho.

We interview managers individually and inspect the workers' contracts and other related documents. We also make a visual inspection and conduct walk-around discussions that cover health and safety issues. At the end of the day, we hold a second meeting with management and employees where we give our preliminary findings of compliance with the ETI code. We facilitate a discussion between the two sides on whether they accept what we say is accurate, and whether we all can agree on the main areas of non-compliance.

We detail the non-compliances in a written report that is submitted to both the farm management and the workers. All parties must consider the report jointly. The management must then draft an improvement plan to address these issues. Subsequently, if Wieta agrees that the improvement plan will address the non-compliances, we ask for verification of the actions taken. This verification can be in the form of photographs, documents, letters or any other documentary proof.

Document trail

Next, the grower records on Sedex that the audit has been carried out. After this, we register the results of the audit with the Sedex site and the growers upload their corresponding improvement plan, and then over a variable period of time address the non-compliances.

The Sedex system automatically notifies Wieta that the farm has uploaded its improvement plan and asks that we verify the actions specified in the plan have taken place.

Once we have verification that all the non-compliances have been addressed, the entire document trail is also taken to the Wieta multi-stakeholder committee, which decides whether to accredit the farm. The accreditation assessment committee never knows which company it is dealing with, as the audit documentation it considers is anonymous. When the committee is satisfied that all non-compliances have been addressed, Wieta offers the farm accreditation for three years.

The farm management uploads to the Sedex site documents (as PDF files) confirming that the changes have been made. Wieta offers assistance in this process, particularly for growers who have little computer or internet experience, ensuring that the audit documentation is uploaded as it should be. The growers then have the entire social audit trail and verification in document form, along with the Wieta accreditation, available on the Sedex site. Now Tesco or any other international retailer or buyer nominated by the growers can access this document trail.

The data collected on the Sedex site is vitally important to Tesco and other retailers. They can inform their customers that within their global supply chain, compliance with, for example, the occupational health and safety requirements of the ETI code is, say, 48%.

Concerns

Wieta does have some concerns about the system, however. Uploading to Sedex all the audit trail data at certain sites has been difficult due to the limited IT infrastructure. Wieta has an interim agreement with another UK retailer, Marks and Spencer, and Sedex under which they will accept offline data capture from some sites. Nevertheless, all new Sedex and Wieta members must capture their audit data online. Sedex is also discussing

Step by step: ethical labour standards traceability with Sedex and Wieta

1. Producer/manufacturer/grower (PMG) registers with Sedex
2. PMG self-assesses compliance with ethical code
3. PMG uploads self-assessment result to Sedex
4. PMG nominates Sedex-approved third-party agency to perform audit
5. Third party (Wieta) audits site, notifies Sedex
6. Wieta uploads audit results to Sedex site
7. PMG uploads action plan, notifies Sedex
8. Wieta uploads proof of changes to Sedex
9. Buyers access audit data on Sedex site

Related resources

Sedex
www.sedex.org.uk

Wines & Vines
➜ Supplier of viticulture software programmes, including traceability systems, web-based winery control systems and decision support software.
www.winesandvines.com/

Trace One traceability applications
➜ France-based developer of traceability information management applications using Microsoft technology. Clients include Carrefour, Auchan and Casino.
www.traceone.net/

E- FRUITRACE
➜ European project that provides an internet-based Europe-wide traceability solution for the fruit sector.
www.efruitrace.com

OLIV-TRACK
➜ European Commission project on traceability of origin and authenticity of olive oil using forensic testing to identify and discourage fraudulent olive oil adulteration.
www.dsa.unipr.it/foodhealth/oliv-track/info.html

Co-Extra Project
➜ GM and non-GM supply chains: their CO-EXistence and TRAceability programme. European Commission project to develop systems for tracing genetically modified (GM) materials along food chains.
www.coextra.org/

PETER - Promoting European Traceability Excellence & Research
➜ Brand new European umbrella project consolidating research and expertise from the EU's eight traceability programmes, and disseminating this knowledge to developing countries. The project comprises TRACE, Co-Extra, SEAFOODPlus, GTIS CAP, GeoTraceAgri, DNA-Track, Oliv-TRACK, ALCUEFOOD and FoodTrace.
www.teleparc.net/newsnext.php?newsid=20

EU General Food Law – traceability regulation
➜ Regulation EC/178/2002 defines traceability as the ability to trace and follow food, feed, and ingredients through all stages of production, processing and distribution. Businesses must identify the immediate supplier of the product in question and the immediate subsequent recipient ('One up, one down').
http://ec.europa.eu/food/food/foodlaw/traceability/index_en.htm

developing an offline data management system that will be suitable for countries where the IT infrastructure is not so advanced.

Tesco recognizes Wieta as a multi-stakeholder auditing body within Sedex, but it also accepts audits performed by commercial auditing firms. The supermarket has criteria with which they assess whether the auditor conforms to what they require, but we feel these criteria are not completely transparent.

Although Tesco's intention with Sedex was to improve the standard of social auditing, it potentially can work in the opposite direction. The more rigorous the auditing body, the greater will be the incidence of non-compliance in the early part of the document trail. With Wieta members, for example, we have often been to estates where there are as many as 35 areas of non-compliance at the audit stage. The entire process of complying with standards can take up to three years between the time a farm joins Wieta as a member and comes out the other side with accreditation. In those three years, a lot of things are done at the farm to change practices and to put in new management systems, sometimes requiring considerable capital expenditure.

Growers know that the Wieta audit process is extremely rigorous and that it will have a considerable impact on their operations. The growers can themselves choose who to ask to do the social audit from a range of auditing agencies via a drop-down menu on the Sedex website.

Thus rather than Wieta, they may well choose a commercial auditor who will do a 'quick and dirty' assessment that does not take note of many non-compliances, so that they look good on the Sedex site to current and potential buyers.

Potentially, then, Sedex could end up promoting the growers who actually have no intention of taking the time to correct non-compliances and want to appear on Sedex as quickly as possible in order to sell their produce.

The task ahead of us is substantial. Working conditions remain poor on too many South African farms. More than a million farm workers have been evicted from farm housing in South Africa since 1994, according to national estimates. Furthermore, upwards of 30% of farm workers are HIV-positive, according to AgriSA, the largest agricultural employers' association in the country.

Since its launch, Wieta has audited 65 vineyards and others are signing on all the time, but there are as many as 4500 vineyards in South Africa and many more deciduous and citrus fruit sites. This is just the tip of the iceberg.

Ethical consumerism is forcing growers to improve their labour standards and to track these improvements. Abuses of these standards wound the national psyche. It is shameful that on many farms we still have poor, oppressive labour conditions that are the same as or even worse than those that existed prior to the advent of South African democracy. ■

FRIEDRICH STARK/LINEAIR

A vineyard worker being paid in both money and wine on an estate near Paarl

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Making the switch

from pen-and-paper to RFID tracking of organic beef

The island of Vanuatu is set to become only the second country in the world to operate the National Livestock Identification System (NLIS), the Australian tracking system for cattle that is compatible with EU traceability requirements.

Vanuatu Abattoirs Limited (VAL Pacific) is a small abattoir servicing local butchers in Port Vila, the capital of the Republic of Vanuatu. The company has been exporting chilled and aged frozen beef to countries throughout the Pacific for some time, but it wants to expand to Europe.

Neighbouring Australia has very strict traceability requirements, with legislation comparable to European food safety laws. The country's National Livestock Identification System (NLIS) was launched in 1999. VAL is working towards incorporation of the NLIS into its own export systems because it is seeking European market access, and Australia's NLIS is compatible with European traceability regulations.

VAL hopes to be able to kill both the Australian and European birds (or cows, as the case may be) with one RFID stone.

Computerised weigh grading

In March 2006, VAL launched a new computerized weigh grading system from Triton Commercial Systems, a New Zealand firm. The system supplies information about live and dressed weights of animals from local farmers delivered to VAL for export and for domestic butchers. For the past three years, VAL has used Triton's carton management system, which produces barcode labels for products due for export. The firm's employees use hand-held scanning equipment when loading to accurately invoice meat for export. Previously, cartons were hand-stencilled, and when loading for export, their weights were manually recorded and tallied before sealing a container. Accuracy was very difficult to maintain with such an antiquated system. Now, with the hand-held scanners, there is much greater accuracy and the system allows for a complete stock-taking of inventory at any given time. All VAL packaging, including cartons, vacuum packaging and product identification labels, displays the certified organic status of the product.

VAL hopes to link the Australian NLIS as a module into the new weigh grading system, along with a special reader, thus adding computerized, radio-frequency identification (RFID) traceability to the company's meat processing. An RFID tag is a tiny device that contains a computer chip and an antenna. When attached to a product or animal, the RFID tag receives and responds to radio-frequency queries from an RFID transceiver. The data transmitted in this way can provide identification and location details of the tagged object.

NLIS and RFID

The NLIS uses machine-readable RFID devices to track cattle. The devices can be an ear tag, or a rumen bolus (which lodges in the cow's reticulum). Cattle are tagged with NLIS devices only once in their life.

The devices are read electronically as they travel along the livestock chain. When read, the cattle owner's property identification code (PIC) is recorded and linked to the NLIS device and stored in the secure central NLIS database. A record of an animal's whereabouts throughout its life, and a history of which other animals it has interacted with is thus maintained. This centrally stored electronic history is what enables farm-to-fork traceability of each animal and its products within seconds.

The incorporation of the NLIS module into the Triton system is currently in the planning stage. At present, traceability is carried out via a manual system in conjunction with careful record keeping by the supplying farms. This manual system may continue to be viable for a short period due to the small numbers of animals that are processed for export. But Vanuatu's farmers are increasing their stockholdings as organic Vanuatu beef is rapidly gaining a favourable international reputation due to the island's tropical conditions and how its cattle are raised.

To guarantee the beef as organic, a clear separation between organic and non-organic products must be maintained at all times. Traceability to the farm of origin is provided through the processing and documenting system. Full documentation to support organic processing is vital to ensure the product is not compromised from farm to export load-out.

JACOB S. GLOWER

For VAL, traceability has historically been done manually, but as beef exports from Vanuatu increase, farmers now have no choice but to introduce more advanced systems. ■

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Related resources

Triton
➜ Triton specializes in barcoding, labelling and inventory control systems for the meat processing and cool storage industries for Australasia, Pacific Islands and Latin America.
www.tritoncomsys.com/

National Livestock Identification System (NLIS)
➜ Information on Australia's NLIS policy. Offers operational procedures, approved exemptions, identification codes and links to legislation
www.agric.nsw.gov.au/reader/nlis

Practical Action – RFID, GPS, GIS livestock identification and trace-back system, Kenya
➜ RFID, GPS and GIS-based livestock identification and trace-back system for pastoralists in the Mandera district.
www.itdg.org/docs/region_east_africa/peace_bulletin_5.pdf

MARK EDWARDS/LINEAIR

Peppers, ports and pest tracking

With the hot pepper market heating up, Jamaica has developed a state-of-the-art pest-incidence traceability system to ensure the gall midge and other pests do not become a barrier to North American and European market access.

Only a few years after the Jamaican hot pepper industry began to 'heat up', farmers began to see exports to their key market, the United States, cool down quite precipitously. A pesky but serious little pest was discovered on the stems of plants. At the height of their success, hot peppers were contributing around $20 million a year to the economies of Caribbean countries, and providing employment for 50,000 people – 3000 in Jamaica alone. But between 1997 and 2001, hot pepper exports from Jamaica to the US fell from 800 to just 300 tonnes.

Over the last decade or so, at the behest of international financial institutions, countries throughout the Caribbean have liberalized their economies. The WTO has required that by 2008 all preferential international trade agreements be eliminated. Jamaica for example has historically depended on such agreements for its sugar and banana exports. In advance of 2008, Jamaica and other Caribbean nations have had to heighten their efforts to diversify beyond these traditional crops and find ones that can compete in global markets. The development of a hot pepper industry across the Caribbean - and the Scotch Bonnet pepper in Jamaica in particular - has been among the most successful attempts at diversification. Hot peppers are now a major non-traditional source of income for small farmers across the region.

However, hot peppers are not just in vogue with North American consumers and restaurant-goers who are increasingly demanding spicy food. They are also very popular with a range of insect pests.

One of the most bothersome of these pests, the gall midge, affects only the stems of the plant and not the fruit, but the American authorities did not want to see the pest introduced to their shores. The use of pesticides to control midge infestations is not feasible as the larva is protected inside the stem and, in any case, US consumers do not want pesticide residues on their food.

Access to vital American markets was hampered, with supermarkets and controlling authorities demanding formal food quality assurances and traceability of pest incidence.

Hot Pepper Task Force to the rescue

In response, a national Hot Pepper Task Force was formed to monitor the incidence of the gall midge in Jamaica. The key participants in the task force are the Jamaican Ministry of Agriculture, the Integrated Pest Management Collaborative Research Support Program (IPM CRSP), the Caribbean Agricultural Research and Development Institute (CARDI), the Jamaica Exporters' Association (JEA) and the Rural Agricultural Development Authority (RADA). The task force formulated an action plan that involved field monitoring, port and packing house inspections,

American restaurant-goers aren't the only ones who love hot peppers; the gall midge loves them too

minimizing of the use of pesticides, farmer education and improved post-harvest management.

To implement the plan, the task force developed a computerized traceability system that employs a geographical information system (GIS), global positioning system (GPS) technology and a web-based surveillance network across 17 districts of the island.

The online traceability system was developed with significant support from the European Development Fund through the COLEACP/Pesticide Initiative Project (PIP).

The plan emphasized the development of a monitoring and surveillance network, the Jamaica Traceability System (JTS), which would effectively intercept the pest at both of the island's ports. The JTS registers farmers who supply produce for export, enabling the tracking of pest incidence back to the farm of origin in the case that pest intervention is required.

The initial stages of the process involved the use of GPS technology to map the locations of Jamaica's pepper farms, and the assignment of a unique code to each one. Further along the supply chain, exporters are responsible for labelling boxes of produce from farmers with a farm's individual code.

The system allows for the collection and recording of details on all parties involved at different stages in the supply chain. RADA provides the farmers' names, parish, extension area, farm district, address and contact details. The exporters supply their name and address as well, and quarantine officers record information concerning product freshness, pests intercepted, ports, and the final export destinations.

The systematic structure and user-friendly interface of the online system encourages the organization of data to provide a wealth of information for developing reports and aid rapid action by the Jamaican authorities.

Where phytosanitary breaches are encountered by the traceability system, the information it stores allows for the quick recall of specific batches of produce. In time, this will provide the basis for detailed reports outlining the frequency of pest incidence or other breaches, the time of year they often happen, the produce on which they occur and the associated farms.

The system also seeks to identify pest-free seasons, pest-free zones, and pest hot-spots with surveys and by tagging locations using GPS technology. Meanwhile, GIS is being used to forecast gall midge outbreaks.

Together, this strategy has resulted in a better understanding of the behaviour and biology of the pest, and the surveillance and traceability systems allow efficient interception and trace-back of infested peppers submitted for export. Port interceptions have dropped impressively over the last few years, and, vitally, the US Department of Agriculture has favourably reviewed Jamaica's capacity to help safeguard US ports from the entry of the gall midge.

Pest tracking for other export commodities

The IPM CRSP continues to assist in activities to help the hot pepper industry in Jamaica with this pest. The traceability system has now been enhanced to facilitate increased market access and to allow more rapid retrieval of information by all key stakeholders.

Another traceability system was designed to facilitate the work of the national Plant Health Coordinating Committee. The JTS will ultimately be linked to this all-encompassing plant-health coordinating mechanism.

The vision is that over time, the system will have established strict, minimum criteria for farmers to qualify for registration in the traceability programme and that these criteria will apply to domestic as well as export supplies. Field monitoring will also be a critical component of this system.

Indeed, with the growing importance of traceability in the global trade arena, these initial efforts at tracing hot peppers back to their farm of origin have been expanded to become an comprehensive traceability system for all export commodities.

The gall midge and his other pest friends may still be there, but at least now we know where. ■

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Related resources

Ministry of Agriculture – A Caribbean Hot Pepper Industry: Concept, Vision
➜ Jamaican Ministry of Agriculture position paper on the future of the Caribbean hot pepper industry.
www.agriculture.gov.bb/default.asp?V_DOC_ID=1642

Food Safety Regulation Concerns and Trade – The Developing Country Perspective
Eds. Rajesh Mehta, J. George
➜ Scholarly monograph looking at theoretical constructs for developing countries to participate in the food-safety-driven international trade, the institutional support mechanisms available to stakeholders, and strategies for developing countries.
www.ris.org.in/foodsafety_book.html

FAO traceability website
➜ UN Food and Agriculture Organisation traceability website with detailed information on implementation of traceability in different situations and relevant technical information.
www.fao.org/ag/agn/food/control_trace_en.stm

'Biological bar code' to check the geographical origin of food
➜ French agricultural research institute CIRAD's Tropical Food Quality Internal Research Unit has developed a bar code method to act as a biological marker, making it possible to trace the geographical origin of imported goods, even after packaging.
www.cirad.fr/en/presse/communique.php?id=175


Scotch Bonnet pepper


Gall midge

RON GILING/LINEAIR

Green thumbs and green practices

Tracking environmental standards in the Kenyan flower industry via the web

Until recently, when consumers bought flowers for Mother's Day or Valentine's Day, they rarely considered how the flowers got to the flower shop, who grew them and picked them or what sort of impact their cultivation had on the environment. They're just flowers. Crysanths and carnations. It's not as if we've purchased a bouquet of sport utility vehicles or anything, right?

In fact, cut flowers do not have to meet the same strict ecological or health standards as food does. European Union regulations covering chemical residues on flowers are far more relaxed than those covering edible products.

Consumer awareness

Over the last few years, however, environmentalists, NGOs and trade unions have launched high-profile campaigns to raise consumer awareness of the industry's use of pesticides, chemicals such as methyl bromide, and the excessive exploitation or pollution of freshwater resources in the developing countries where these flowers are grown.

Environmentally conscious consumers are increasingly demanding certification that the roses or carnations that they purchase come from growers that minimize their impact on local ecosystems. This requires that environmental standards be tracked from the florist back to the flower farm, and some growers in ACP countries are using a web application to do so.

Kenya produces 30% of Africa's total flower exports. It is also is the largest exporter of cut flowers to the EU. Indeed, floriculture now challenges Kenya's long-standing tea and coffee industries as its biggest foreign exchange earner. Observing Kenya's success in this sector, Tanzania, Zambia and Ethiopia have now built up their own sizeable flower industries.

However, the environmental practices of some growers have in recent years come in for scrutiny, particularly in relation to the pollution and over-exploitation of Lake Naivasha at the bottom of the Great Rift Valley. There is little regulation of the use of the freshwater lake for irrigation by the flower farms, leaving the water levels significantly reduced.

Mileu Programma Sierteelt (MPS) is a floriculture certification organization operating in Kenya, Zambia and other parts of the world. MPS assesses and certifies the performance of its participants with regard to environmental, social and quality-related matters. Set up in 1993 at the initiative of flower auction houses, growers and sales organizations in the Netherlands, MPS works to reduce the environmental impact of growers worldwide.

MPS participants must keep detailed records of the crop-protection agents and fertilizers they use, the waste they generate, and the amount of energy and water they consume. Growers must register this data with MPS on a monthly and quarterly basis.

To simplify the registration process, MPS developed a computer program known as ACTRES, an abbreviation of 'actuele registratie' (up-to-date registration). ACTRES is a web-based traceability application designed for the floriculture sector that enables users to keep records of activities such as fertilizer use, stock-taking and water meter readings on a daily, weekly or monthly basis. The application automatically compiles these data and makes them easily traceable along the supply chain, permitting the awarding of various levels of MPS certification, depending on the laxity or vigilance with which flower growers have adhered to different standards.

Furthermore, ACTRES itself can be used as a crop management tool, permitting the growers to see exactly what they have done to their crop over a period of time. In this case, when, where, which and how much crop protection has been used.

The tracking system is a great time-saving advance. The automation and centralization of the process means that registration for MPS participants is simple. ACTRES is particularly useful for growers who wish to be certified by EurepGAP, the internationally recognized European retail standards for sustainable production of fruit and vegetables.

Most MPS certificates are 'business-to-business.' However, MPS's Fair Flowers Fair Plants (FFP) label, introduced in 2005, now makes it possible to deliver certified, traceable flowers that are sustainably cultivated directly to consumers in their local flower shop – a breakthrough that growers have been awaiting for a long time.

Labels

FFP is a European project set up by MPS to develop a consumer label for sustainably grown flowers and plants. FFP guarantees that the flowers and plants sold under this label comply with environmental and social standards. The unique feature of FFP is that all the links in the chain can participate – growers, dealers, and retailers/supermarkets.

All along the supply chain, traceability is guaranteed and the consumers can rest assured that the flowers or plants they have purchased have been sustainably produced. ■

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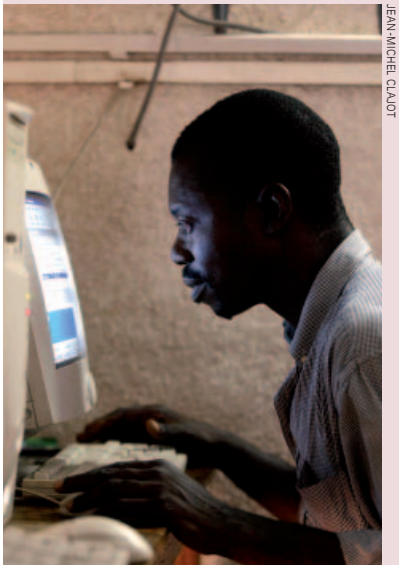
PIP Toolbox and traceability software


JEAN-MICHEL CLAJOT

The PIP Toolbox is intended to raise awareness among ACP fruit and vegetable farmers about EU food safety and traceability requirements. This e-education tool was developed by the Europe–ACP Liaison Committee Pesticides Initiative Programme (COLE/ACP PIP), an inter-professional association of exporters, importers and other stakeholders in the EU–ACP horticultural sector.

The toolbox includes two CD-ROMs that gather together the PIP's expertise with regard to EU legislation on pesticides. The toolbox software runs on Windows 98 or higher, and users need to have a computer with a Pentium processor, with at least 1.5 GB of disk space. The software takes between five and thirty minutes to install.

Once installed, the toolbox offers users access to a pesticide database compiled from various sources, including European regulations on active substances present in pesticides and the national regulations of ACP countries on active substances. Users can cross-search the database by country, crop or active substance.

The PIP regularly arranges 'collective' training sessions on traceability for ACP horticulture stakeholders, where PIP officers explain what traceability is, why producers need to have a traceability system, how to obtain one, and how to set up traceability documentation. With the PIP Toolbox, organizations can now offer distance learning programmes in order to develop capacities in this area.

PIP officers first ensure that producers have a working paper-based traceability system. Once that is up and running, they will propose that the system be computerized, thus helping them to access Northern markets.

However, over the course of implementing these training sessions, PIP organizers found that there really was no traceability software appropriate to the ACP fruit and vegetable sector, particularly for small farmers. At this point, the PIP decided to develop their own dedicated horticulture traceability software with small ACP farmers in mind.

The user-friendly traceability software comes as a module within the PIP Toolbox. The software produces a unique identification number that provides each exporter, and ultimately the consumers, with details of the entire cultivation process. The exporter can record this number for future reference or invest in a barcode system and print off barcode labels to be attached to each shipment.

Additionally, the software works as a simple decision support system that allows producers to decide on planting schedules and to determine how many plants will be needed to achieve a specific output level. It also offers advice on appropriate plant protection products, when they should be used, and when the crop should be harvested. ■

The PIP toolbox includes:

- an interactive training area for self-training or self-assessment in the areas of food safety and food traceability
- a glossary with definitions of the most important traceability and food safety terms
- a video library with 20 extracts presenting the main application methods for plant protection products
- some 600 annotated photos of cultivation practices and crop enemies
- training modules on crop protocols for key ACP crops, such as avocado, passion fruit, pineapple, French beans, cherry tomatoes and okra
- a six-topic FAQ

Related resources

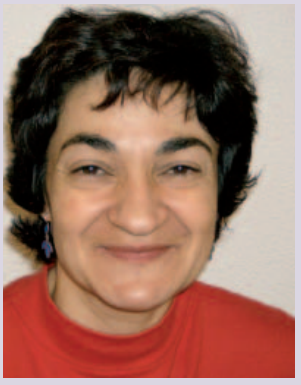
Kenya Flower Council
➜ The Kenya Flower Council, a consortium of the six largest flower producers, developed a code of practice with regard to labour and environmental standards. The Counsil's aim is to provide a local alternative to the many European codes.
www.kenyaflowers.co.ke/

Fairness in Flowers
➜ International Labor Rights Fund campaign that aims to raise awareness about labour rights violations and health and safety problems in the cut flower industry in the developing world.
www.laborrights.org/projects/flowers_index.htm

2nd International Conference on Agricultural Product Traceability – Brazil, April 2006
➜ This webite includes a comprehensive listing of the papers presented at the conference available for PDF download.
http://conferencia.agricultura.gov.br/conference.htm

Utz Kapeh programme – fair-trade coffee traceability
➜ Utz Kapeh is a leading coffee certification programme. Its web-based traceability system follows certified coffee along the supply chain from grower to roaster.
www.utzkapeh.org/

Q&A



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Targeting ACP traceability awareness via the web

ALCUEFOOD is an EU-funded project that is helping to strengthen R&D cooperation on food safety and traceability between Europe and Latin America and the Caribbean. Nadine Zakhia, a lead food technologist with ALCUEFOOD, discusses with ***ICT Update*** the web platform the project has constructed to share traceability knowledge between the two regions.

What are the origins of ALCUEFOOD?
➜ One outcome of the 1992 Earth Summit in Rio was a closer dialogue between Europe and the countries of Latin America and the Caribbean (LAC). Part of this dialogue has been concerned with the agrifood sector, since food quality and safety in particular have become urgent priorities. ALCUEFOOD was set up as a result of this dialogue between the two regions.

One of ALCUEFOOD's main objectives is to implement a permanent networking platform on food quality and safety between the two regions. Beyond this, two other objectives are, first, to share information between the regions on these issues, and second, to develop new joint LAC-EU R&D projects.

What do you mean by a networking platform?
➜ A consortium or network that involves many different stakeholders in the food supply chain such as scientists, producers, enterprises, consumer associations, policy makers and regulatory bodies. One of our first priorities has been to set up a web portal – www.alcuefood.org – an 'innovative and global information system' that facilitates communication between the regions. Within this portal, we are compiling all the regulations related to food quality and safety so that Caribbean and Latin American partners can learn about such regulations and can access them in one central location. Second, we are building a database of key scientists, policy makers, producers, institutions, and consumer groups in Caribbean, Latin American and EU countries who could participate in joint LAC-EU projects in the future.

Recently, we have found that certain issues require more detail or explanation in this global information system, especially traceability. We are now addressing traceability concerns. Further, the information is divided into three sub-areas: the market aspects of traceability – demand from European markets and the inter-regional LAC market; the legal aspects – regulations and standards; and the technical aspects – current traceability techniques and technologies. We also want to develop a second database dedicated to traceability.

It's often thought that a number of technologies that aid traceability and food safety – such as RFID and computerized tracking systems – are simply beyond the reach of many developing country farmers due to their cost and the lack of local capacity. How is ALCUEFOOD tackling this issue?
➜ Actually, in the Southern Cone [Argentina, Chile, Paraguay and Uruguay], you can already find some of the larger farmers who can afford such technologies. Elsewhere, some of these advanced techniques could be applicable in a few years, but initially there is a need for simpler techniques. Awareness comes first. We also need to identify the agricultural needs and conditions in different regions, and to make European officials aware of them. Thus we have two goals: to disseminate European information to LAC countries, and to disseminate information about the agricultural 'context' of LAC countries to Europe.

ALCUEFOOD is focused on Latin America and the Caribbean, but awareness of the need for traceability also needs to be raised elsewhere in the developing world.
➜ Yes, you're right, and we intend to extend the process to other developing countries in Africa and Asia. We started with Southern Cone countries simply because we had some personal experience with people from these countries. But now there's a desire to extend the process to Mexico, Central America and the Andean region, and later on to Africa and Asia.

The site is largely in English. Why is that?
➜ (Laughs) Yeah, yeah. I know. That's just for the staff. There are four main languages spoken in the LAC region: English, French, Spanish and Portuguese. At the start, to make it more internationally accessible on the internet, we started with English. By the end of 2006 we should have it at least in Spanish an Portuguese, and we aim to have it in all four languages by the end of the project.

What is the future for traceability for LAC countries?
➜ ALCUEFOOD is a partner in PETER – Promoting European Traceability Excellence and Research. This new EU-funded project, launched in April 2006, will consolidate the information on the eight different European projects working on traceability. Like ALCUEFOOD but broader, the goal of PETER is to disseminate European knowledge on traceability to developing countries and in parallel to put forward the demands and contexts of developing countries to Europe so that there is an exchange between European knowledge and traceability systems and the real needs of LAC countries.

Ultimately, we want developing countries to choose or design traceability systems that are the most appropriate to their local context, and not pick certain systems simply because that's the way it's been done in Europe. ■

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